

Section 973
LIGHT TRANSMISSION TEST

973.01 Scope

1. This method covers the determination of percent light transmittance of asphalt pavement rejuvenating agents. The test is an indirect measure of the fineness of particles in the emulsion. Finer particle size facilitates the absorption of the agent into the pavement surface.

973.02 Apparatus

1. Graduated Cylinder, 2000 mL, with a ground glass stopper
2. Light transmittance-measuring apparatus: any UV/Visible spectrophotometer
3. Graduated Pipette, 1 mL capacity to 0.01 mL accuracy
4. Suction bulb for use with the pipette
5. Graduated Cylinder, 25 mL -Calibrated to deliver, or a Veterinary Syringe
6. Sample tubes or cuvettes compatible with the spectrophotomer
7. Bio-Act for clean-up

973-03 Calibration of the Spectrophotometer

1. Set the wavelength at 580 mu
2. Allow the spectrophotometer to warm up 30 minutes
3. Zero the percent light transmittance (%LT) scale
4. Rinse the sample tube/cuvette three times with deionized water and fill with it
5. Place tube/cuvette in spectrophotometer and set %LT at 100

973-04 Procedure

1. Stir/mix the emulsion to be tested
2. Place 2000 mL of deionized water into the 2000 mL graduated cylinder
3. Using the pipette with suction bulb transfer 1.00 mL of the emulsion into the graduated cylinder containing the 2000 mL of deionized water. Rinse the pipette by sucking in the diluted emulsion solution and emptying into the graduated cylinder until the pipette is clean
4. Stopper the graduated cylinder and shake to mix the emulsion evenly into solution
5. Empty the tube/cuvette used to calibrate the spectrophotometer and replace with the diluted emulsion mixture from the calibrated cylinder. Rinse the tube/cuvette three times with the diluted emulsion mixture to ensure a good sample
6. Place the tube/cuvette into the spectrophotometer and read the %LT to the nearest integer. Repeat taking readings until three identical readings are achieved. Perform the dilution of the emulsion and obtain the final %LT reading within 5 minutes.
7. Record and report the final %LT reading